

**MULTIPLE-SOURCE ARRAYS FOR CONFOCAL
AND NEAR-FIELD MICROSCOPY**

Abstract of the Invention

- 5 A multiple-source array for illuminating an object including: a source of
electromagnetic radiation having a wavelength λ in vacuum; and a reflective mask
positioned to receive the electromagnetic radiation, the reflective mask comprising an
array of spatially separated apertures, wherein each aperture comprises a dielectric
material defining a waveguide having transverse dimensions sufficient to support one or
10 more guided propagating modes of the electromagnetic radiation extending through the
mask, each aperture configured to radiate a portion of the electromagnetic radiation to the
object.